WHY IS HEAD & NECK COMPLICATED?

SPECIAL SENSES (SSA - VISION, AUDITORY SVA - OLFACITION) SURROUND ORAL CAVITY; YOU SENSE WHAT YOU EAT (AND AVOID BEING EATEN)

OUTLINE: ORAL CAVITY

I. SUBMANDIBULAR REGION
II. TONGUE
III. NERVES, ARTERIES, SALIVARY GLANDS
I. SUBMANDIBULAR REGION

= AREA BETWEEN MANDIBLE & HYOID BONE

1. DIGASTRIC-
O - POST. BELLY-
TEMPORAL BONE-
MASTOID NOTCH; ANT.
BELLY- INNER SIDE
MANDIBLE;
I - INTERMEDIATE
TENDON- HYOID;
ACT - ELEVATE HYOID
& DEPRESS MANDIBLE
INN - V3, VII

OPENS MOUTH

REVIEW MUSCLES

NOSE

OPENS MOUTH
2. **MYLOHYOID**
   O - MYLOHYOID LINE OF MANDIBLE;
   I - HYOID & MIDLINE RAPHE WITH OPPOSITE SIDE;
   A - ELEVATE HYOID, RAISES FLOOR OF MOUTH IN SWALLOWING;
   INN - V3

**SUBMANDIBULAR REGION**
3. GENIOHYOID -
O - inner side of mandible above mylohyoid
A - Elevates hyoid and draws forward
Inn - C1 branch hitch-hiking with Hypoglossal nerve (CN XII)
SUBMANDIBULAR REGION

MUSCLES VIEWED AFTER BISECTION OF HEAD

GENIOGLOSSUS
- mandible-tongue

GENIOHYOID
- mandible-hyoid

MYLOHYOID
- cut on end

DIGASTRIC
II. TONGUE

MOBILE MUSCULAR ORGAN ATTACHED TO HYOID, MANDIBLE & SKULL BY MUSCLES

FUNCTIONS: SPEECH, SWALLOWING, TASTE & INFANTILE EMOTIONAL EXPRESSIONS

A. SUPERFICIAL STRUCTURES

1. SULCUS TERMINALIS - V-SHAPE GROOVE DIVIDES TONGUE INTO: ANT. 2/3 - ORAL PART - GSA; POST 1/3 - PHARYNGEAL PART - GVA

2. FORAMEN CAECUM - PIT IN MIDDLE OF SULCUS TERMINALIS - SITE OF INVAGINATION OF THYROID GLAND
FOLDS, LANDMARKS BENEATH TONGUE

3. LINGUAL FRENULUM (L. BRIDLE) MIDLINE FOLD FROM FLOOR OF MOUTH

4. FIMBRIATED FOLDS (PLICA FIMBRIATA) (L. FRINGE) - LATERAL TO LINGUAL FRENULUM, LOCATION OF LINGUAL VEINS

5. SUBLINGUAL FOLDS (PLICA SUBLINGUALIS) OVERLIE & HAVE OPENINGS FOR SUBLINGUAL SALIV GLANDS

SUBLINGUAL PAPILLA - SWELLING AT BASE OF FRENULUM; OPENINGS SUBMANDIB. SALIV. GLANDS
B. MUSCLES OF TONGUE - all innervated by XII

A) GENIOGLOSSUS
O - GENIAL TUBERCLE OF MANDIBLE
I - TONGUE TO ITS DORSAL SURFACE
A - PROTRUDE

1. EXTRINSIC MUSCLES - ATTACH TONGUE TO BONES

B) HYOGLOSSUS
O - GREATER & LESSER HORNS OF HYOID BONE
I - LAT. SIDE OF TONGUE
A - DEPRESS

C) STYLOGLOSSUS
O- STYLOID PROCESS OF TEMP. BONE
I - LAT. SIDE OF TONGUE
A - DRAWS TONGUE SUPERIORLY & POSTERIORLY
2. INTRINSIC MUSCLES OF TONGUE

A) VERTICAL M. - FIBERS SUP & INF - FLATTEN & BROADEN TONGUE

B) TRANSVERSE M. - FIBERS HORIZONTAL - NARROW TONGUE

C) LONGITUDINAL M. - FIBERS ANT-POST. - SHORTEN TONGUE
C. INNERVATION OF TONGUE

NOTE:

PHARYNGEAL PART - POST 1/3 and ANT. TO EPIGLOTTIS - GVA TOUCH, PAIN; SVA TASTE

ORAL PART - ANT 2/3 - GSA TOUCH, PAIN; SVA TASTE

ANT. TO EPIGLOTTIS -
1) X - VAGUS
GVA TOUCH AND SVA TASTE

POST. 1/3 OF TONGUE
1) IX - GLOSSOPHARYNGEAL GVA TOUCH
AND SVA TASTE

ANT. 2/3 OF TONGUE
1) V3 - LINGUAL N.
GSA TOUCH
2) VII - CHORDA TYMPANI - SVA TASTE

NOTE: ALL MUSCLES INNERVATED BY XII HYPOGLOSSAL (GSE) – PALATOGLOSSUS IS MUSCLE OF PALATE INNERVATED BY X (VAGUS)
DISTRIBUTION OF TASTE SENSATION

Current evidence supports ideas:
1) VII (Chorda Tympani) has more fibers that respond to sweet
2) IX has more fibers that respond to bitter

C. LYMPHATICS OF TONGUE

1. TIP OF TONGUE to SUBMENTAL NODES
2. REST OF ANTERIOR 2/3 OF TONGUE to SUBMANDIBULAR NODES AND DEEP CERVICAL LYMPH NODES
3. POSTERIOR 1/3 OF TONGUE TO DEEP CERVICAL LYMPH NODES

NOTE: LYMPH VESSELS OF TONGUE CROSS MIDLINE; LESION MAY SPREAD TO OPPOSITE SIDE
III. NERVES, ARTERIES AND SALIVARY GLANDS

1. LINGUAL NERVE

ARISES FROM POST. DIVISION OF V3 IN INFRATEMPORAL FOSSA - COURSES MEDIAL TO MANDIBLE - JOINED BY CHORDA TYMPANI

CHORDA TYMPANI - ARISES FROM VII IN FACIAL CANAL - PASSES THROUGH TYMPANIC CAVITY, MEDIAL TO MALLEUS - OUT VIA PETROTYMPANIC FISSURE - CARRIES SVA TASTE TO ANT 2/3 TONGUE, GVE PARASYMP. TO SUBMANDIBULAR GANGLION
LATERAL VIEW-CUT AWAY MANDIBLE
V3 LINGUAL NERVE - ENTERS FLOOR OF MOUTH (MEDIAL TO THIRD MANDIBULAR MOLAR TOOTH)

VII CHORDA TYMPANI - GVE PARASYMPATHETICS TO SUBMANDIBULAR GANGLION - SVA - TASTE TO ANT 2/3 TONGUE HITCHHIKE WITH LINGUAL N.
LINGUAL NERVE - COURSES UPWARD ON SURFACE OF HYOGLOSSUS MUSCLE;

SUBMANDIBULAR GANGLION (VII) - SUSPENDED FROM LINGUAL N., INN SUBMANDIBULAR & SUBLINGUAL SALIV. GLAND

LINGUAL N. TERMINATES IN DORSUM OF TONGUE; PROVIDES GSA TOUCH, PAIN TO ANT 2/3 TONGUE; CARRIES SVA TASTE FROM VII
PROSECTION OF ORAL CAVITY

PROSECTION BY MATTHEW BUSH, MUSOM SUMMER 2000

SD, LN, V3, MA, SGM, DGM, MA, SCMM, XII, SG, AC, OM, SHM

MANIDBLE IN PLACE
2. GLOSSOPHARYNGEAL NERVE

STYLOPHARYNGEUS

2. GLOSSO-PHARYNGEAL NERVE - IX - COMES OUT JUGULAR FORAMEN - COURSES LATERAL TO AND AROUND STYLOPHARYNGEUS MUSCLE
GLOSSOPHARYNGEAL NERVE

- Passes in gap between sup & middle constrictions
PASSES DEEP TO PALATINE TONSIL; ENTERS POST TONGUE

GVA - GENERAL SENSATION + SVA - TASTE TO POST 1/3 OF TONGUE
3. HYPOGLOSSAL NERVE

OUT HYPOGLOSSAL CANAL; PASSES BETWEEN INT JUGULAR VEIN AND CAROTID ARTERIES; RECEIVES C1 FIBERS (ANSA CERVICALIS) TO THYROHYOID & GENIOHYOID
HYPOGLOSSAL NERVE

COURSES ON SURFACE OF HYOGLOSSUS MUSCLE; ENTERS TONGUE (DEEP); INNERVATES GSE->ALL MUSCLES OF TONGUE

NOSE

HYOGLOSSUS M.
OVERVIEW OF BLOOD SUPPLY TO HEAD
(EXCLUDING BRANCHES OF INTERNAL CAROTID A.)

7) SUPERFICIAL TEMPORAL A.
   Transverse Facial a.

* 8) MAXILLARY A.

5) OCCIPITAL A.
6) POST.
   AURICULAR A.

EXTERNAL
   CAROTID A.

1) SUPERIOR THYROID A.
   (not shown)

Vertebral a.
Costo-cervical tr.
Subclavian a.

Common carotid a.
Internal thoracic a.
Thyro-cervical trunk.

EXTERNAL CAROTID ARTERY
1) Superior Thyroid a.
2) Ascending Pharyngeal a.
3) Lingual a.
4) Facial a.
5) Occipital a.
6) Post. Auricular a.
7) Superficial Temporal a.
8) Maxillary a.

SUBCLAVIAN ARTERY
Vertebral a.
Internal Thoracic a.
Thyro-cervical trunk
Costocervical trunk
1. LINGUAL ARTERY

ARISES JUST BELOW TIP OF GREATER HORN OF HYOID – FORMS UPWARD LOOP PASSING DEEP TO POST MARGIN OF HYOGLOSSUS

LINGUAL ARTERY

HYOGLOSSUS MUSCLE

DEEP TO

NOSE
LINGUAL ARTERY

LINGUAL ARTERY- TURNS UPWARD TO SUPPLY TONGUE BRANCHES
A) DORSAL LINGUAL BRANCHES- TO DORSUM OF TONGUE
B) SUBLINGUAL ARTERY-> TO SUBLINGUAL SALIVARY GLAND
2. FACIAL ARTERY- ARISES SUPERIOR TO LINGUAL ARTERY
a) ASCENDING PALATINE ARTERY - PALATE

b) TONSILLAR BRANCH - PALATINE TONSIL

FACIAL ARTERY - BRANCHES MEDIAL TO MANDIBLE
FACIAL ARTERY - BRANCHES MEDIAL TO MANDIBLE

c) GLANDULAR ARTERIES - SUBMANDIBULAR, SUBLINGUAL GLANDS

d) SUBMENTAL ARTERY TO CHIN

NOSE
C. SALIVARY GLANDS

1) SUBMANDIBULAR GLAND - C SHAPE, WRAPS AROUND POST BORDER OF MYLOHYOID; -CAPSULE ATTACHED TO MANDIBLE, DERIVED FROM INVESTING LAYER

SUBMANDIBULAR DUCT=SPRITZ, GLEEK

SUBMANDIBULAR DUCT-ARISES BETWEEN MYLOHYOID (ANT) & HYOGLOSSUS- POST-OPENS- 1-3 ORIFICES ON SUBLINGUAL PAPILLA

2) SUBLINGUAL GLANDS- LOCATED BETWEEN MANDIBLE & GENIOGLOSSUS -OPENS- 10-12 SMALL DUCTS TO SUBLINGUAL FOLDS (PLICAE SUBLINGUALIS)